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THE DEVELOPMENT OF NOTATION IN CLASSIFICATION

BY

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Library Assistant."

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THE DEVELOPMENT OF NOTATION IN CLASSIFICATION.*

By H. RUTHERFORD PURNELL,

Of the Croydon Public Libraries ;

Hon. Editor of "The Library Assistant."

I owe an apology to this meeting to-night for the apparent dryness of the subject with which I propose to deal. What could be more uninteresting than the subject of notation, library pressmarks, classification numbers, or whatever other title you may wish to give to the finding numbers with which books are marked? Yet if studied in relation to the classification of books and its historical development an interest can be found even for these dry bones of the librarian's duties. The ways of arranging books are infinite in number, and the methods of showing their arrangement vary from a simple consecutive numbering from one onwards, to an elaborate system of marking that may include the use of all the symbols used in the art of writing.

In dealing with notation, as with classification, it is necessary to begin very early. We learn that in the libraries that existed before books began to take anything approaching the form of writing on paper, when they were

*A Paper read before the Library Assistants' Association, at the North Islington Public Library, on Wednesday, January 11, 1911.

THE LIBRARY ARRANGEMENT

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merely engravings on stone or scratchings on clay slabs, the stones or bricks were arranged by subject in specially made cases. It is not difficult to realise that some means were taken to show the position of each, so that when they were removed for consultation they could be returned to their proper shelves. Though libraries flourished in the days of ancient Egypt, Greece and Rome, they have left very little traces of their existence. Their classifications, consisting as they did merely of the arrangement of books in broad classes such as Physics, Mathematics, Metaphysics, Ethics and Politics, yet show the hoary antiquity of the principle that books should be arranged by subject rather than by any other method. This principle has survived through many a dark age in the history of books, and is seen when, towards the Middle Ages, an interest again began to be taken in books, and the learning that is to be gained from them. In these early days, at the very beginning of modern history, however, books were so scarce as to need very little arrangement. But even where libraries consisted simply in reading desks to which the books were chained, convenience would suggest that all those dealing with theology should be together, and similarly, those dealing with other subjects. It is not possible to say for certain how the arrangement was indicated, but probably the books were so few as to need no such guide. It was when books began to multiply through the invention of printing, that libraries of any size sprung up, and with the accumulation of books, problems of their arrangement from the first appeared. Classification as a science is not confined to books; though some librarians may be apt to monopolize it to themselves as if they invented it and perfected it, and to think that the classification of other things, even of apples, potatoes, and oranges in Mr. Brown's well-known example of the costermonger's barrow, does not matter. But classification is necessary in almost every department of life; and so, too, notation is useful if not necessary wherever classification is applied. For instance, in the science of chemistry, the problems arising from the inquiry into the composition of matter involve the naming of many elements and substances. Where it is necessary to name a substance made up of several constituents or show its combination with another substance, the process would be very complex were a notation not designed to express each substance briefly. To give a concrete example; water is composed of two parts of hydrogen and one of oxygen. The chemist calls hydrogen H

and oxygen O and the proportionate combination of the two H₂O. Similarly sulphuric acid, consisting of two parts of hydrogen, one of sulphur, and four of oxygen he calls H₂SO₄. If he wants to add some water to some of the latter he can say H₂O + H₂SO₄. The result will most certainly be in the nature of an explosion, but he has expressed it simply. Notation is used in many other departments of life and takes many different forms, as for instance in music, most complicated sounds are denoted by a few black spots or circles with straight lines running from them and curly ones in between —I am not a musician.

Now your clever modern librarian, in making a first attempt to give a notation to the arrangement of his books went to work in rather a curious way. He knew the main subjects dealt with in books, and built a series of cases to contain his books. Then he went to the cases and said, this case must be for theology and we will call it A. This one must contain history, let us name it B. The next one he set aside for science and called it C, and so on for as many cases as he had. Each case was rather big, and had a lot of shelves in it, so as he wanted to show exactly where each book was placed he numbered the shelves one, two, three, and so on to the end of the case. Then it was easy to call the first book on each shelf one, and the others two, three, and four to the end of the shelf. This was simple: easily to be understood by anyone looking for a particular book. If told by the librarian or the catalogue that the book he wanted was numbered A.1.4, all he had to do was to go to case A and take down the fourth book on the first shelf. I am of opinion that this marking of the presses to show the position of books was the commonest if not the only form of arrangement in use in the early libraries of modern times; and there may be a reason for these pressmarks to be found in the habit of chaining books so that they should not be stolen. Many of the monastic libraries were so arranged, and the whole of the oldest part of the Bodleian Library is pressmarked on a similar principle, as well as a number of the College Libraries.

Here I should like to say that, though there may be better fields for the study of classification than the Bodleian Library, I have yet to hear of one, and I need go no further in considering the subject of notation than this one library, except for purposes of comparison and application. At the beginnings of its history as Bodley's Library, the collection was classified as I have already indicated, except that more than one case was devoted to

each class, and the name of the subject groupings was added to the shelf-mark. There were four classes which corresponded with the University Faculties: Theology; Medicine, including botany, natural history, etc.; Jurisprudence, which included history and everything relating to the government of society; and Arts, a quite miscellaneous section. A certain portion of the building was set aside for each class, the cases lettered Theol. A B C, Medicine A B C, etc., and the shelves of each case numbered 1 onwards. The complete notation of the books in this part of the library is exemplified in the pressmark A.1.1. Th., denoting the first book on the first shelf of the first theological case. In any library where this system of numbering the presses is adopted, everything goes quite happily if the cases can all be filled up and no more books are expected. But if the library is growing there soon comes a time when the cases get filled up, and trouble begins. Either the books must be entirely re-arranged and re-numbered, with spaces left at intervals for growth, or a new series of cases must be started with a similar scheme of classification, and when they are full a third series, and so on. The classification would thereby be rendered practically useless. This is exactly what happened at the Bodleian. The cases and in fact the whole building became filled; new wings were built and a similar classification adopted. The books in the new portions were distinguished by an addition to the pressmark of the name of the new part of the library as in the case of the wing built by John Selden. Here the pressmarks are A.1.1. Med. Seld., etc.

To illustrate the difficulties attending this shelf numeration in a growing library, I might mention my experience in one of the Oxford College Libraries. This library was very ably classified by Edward Edwards, that sadly neglected pioneer of the library movement. Unfortunately Edwards adopted the shelf marking system. He numbered all the cases from 1 up to two or three hundred; gave letters to the shelves, and separate numbers to individual books; so that the pressmarks are simply 2 a 1, 4 b 6, or 200 e 25 as the case may be. To-day the library has become full to overflowing, and an amusing expedient to gain space is to push back a shelf-full of books and arrange another row in front, altering the pressmarks to double letters (AA, BB, etc.) for the back row, and retaining single letters for the front row. The cases are all, besides being solidly built with good old English oak, made very deep. In many instances, advantage has been taken of this depth not only to double row

the shelves, but to treble and even quadruple them. Each alteration means, of course, turning up the books in the catalogue and adding letters to the pressmarks, or, in case of the transference of books to other shelves, altering the whole of the pressmark. Many an hour have I spent in alterations of this kind. It is, to me, a matter for wonder that so great a library as the British Museum still retains this antiquated form of pressmarking.

It would seem that there came a time in the history of the Bodleian when any attempt to classify the books seemed hopeless. They were coming in so rapidly that time or inclination was wanting to classify them on the old system with its ever recurring need for alteration or rearrangement. In the year 1824 the extraordinary plan was adopted of taking all the 8vo. accessions for one year, arranging them in alphabetical order, and numbering them from one onwards. The numeration thus appears as 1824.1, 1824.2, shortened to 24.1, 24.2, etc. It thus happens that a theological treatise jostles alongside of a novel, the novel next to a medical work, and that beside a biography without minding it in the least. After a while even the alphabetical arrangement seems to have dropped and the books were simply numbered as they came in. This form of numbering was kept up until the year 1850, and the collection is preserved as it stands, though it has now been banished from its aristocratic position in the picture gallery to a more humble one in the basement of the old Ashmolean Museum. There is one thing to be observed about this peculiar arrangement that is of interest for our present purpose. Whereas before, all the book-marking was in relation to the cases in which the books were stored, in these year-books, as they are named for short, the numbering is independent of the cases altogether. As long as you can find the books of the year 1824, wherever they may be, you can find any particular book of which you have the number. This is a distinct departure from previous methods of marking, and may have suggested the later developments in book arrangement.

A most interesting experiment tried, it is thought, between 1850 and 1860, was a form of lettering applied to labels affixed to the books to denote subjects, of which a few specimens will give the best idea :—

Ev = English verse; B = Botany; Lp = Latin prose;
P = Prayers; Dr = Drama; Chr = Chronicles; PE =
Political economy.

Stored away in one of the lower rooms of the Bodleian is a little collection of books that is, I venture to think, of

something like historic importance in the annals of classification. It is difficult to find any definite particulars of the collection, but I imagine that Bodley's Librarian of the time, or one of his assistants, began to see the absurdity of the arrangement of accessions by year, and wished again to classify the books by subject. But instead of apportioning certain shelves to the classes as of old, he gave numbers to the classes and carried the numbers into the books according to their subject. It is interesting to find that the classes follow the main idea of the original classification of the Library, but shew an increase in number. The scheme is: 1 Theology; 20 Medicine; 30 Arts and Trades; 35 Law; 50 Mathematics and Physics; 55 History; 70 Miscellaneous Literature; 85 Poetry; 90 Classics; 95 Philology. The date of this collection cannot as yet be fixed with certainty, but a clue can be found in the dates of the books themselves. The first book in Class 1 is dated 1844; the first in Class 30 is 1847; in 35, 1861, and in 95, 1856. I think there is little doubt that the collection was started about 1850, and it is not difficult to surmise from what follows that the arrangement proved a success, and led to the developments that we shall come to directly. I wonder whether any earlier examples of classification by subject, with a notation altogether apart from the shelves, are to be found. The Decimal Classification was invented by Mr. Melvil Dewey in 1873-1876. However early Mr. Dewey's experiments began, I do not think they could have begun so early as this. And yet the principle is identical. The small collection in the Hope-Montagu room of the Bodleian represents a revolution in book-classification. Hitherto the standard of numbering was according to the cases in which books were placed, technically known as fixed location. The little collection of which I am speaking is surely one of the earliest if not the earliest arranged on the principle of relative location.

This early classification scheme went further than the provision of a notation for subjects. It assigned as complete a book number to each individual book as any shelf mark could do, and that by a simple and effective means. Books of different sizes were separated and the letters a, b, or c given to the respective sizes. Then in each class and size the books were numbered one onwards. In section 35, law for example, there would be three sequences, 35 a 1; 35 b 1; and 35 c 1. Thus early was established a complete notation, by which books were individualized, without the necessity for their being assigned to any particular

bookcases. The collection could be moved about at will without necessitating any changes of pressmark, and what is equally important it was expansive. If any sections became full, the rest could be moved on to allow further space *ad infinitum*, or at any rate to the full extent of the library building. Even now additions can be made to it when any valuable books of an early date are purchased by the library.

This brings us to a consideration of the later developments of notation, not only in the Bodleian, but also in the libraries of the world. The simple notation just described contains all the essentials of a book number, namely, a short sign for each class ; and then a number for each book in that class. That notation can be elaborated to show more than this we shall see a little further on. In 1850 the "year books" ceased and gave place to a classification scheme similar in principle to the little collection in the Hope Montagu Room, like it based on the original main classes of the Library, but with an entirely different notation. In the first table is given a reprint, slightly abbreviated of the "plan of classification" presented with the "Report of the Committee of the Curators of the Bodleian Library," in February, 1878. I have given the old classification scheme, which was in use from 1860 or some time before, to 1880, because Mr. E. W. B. Nicholson, on becoming Bodley's Librarian in 1882, used it as the basis of an extended scheme which, in respect to minuteness of division rivals any of the existing schemes, and has placed the Bodleian on a plane of usefulness as high as any of the great libraries of the world.

I wish that I could give here a table of the Bodleian Classification at present in use, because it is deserving of close attention, and is at present unknown beyond the limits of the library. The scheme is probably unsuitable for any other library, but if studied in connection with the history of the library is of extreme interest, both from the point of view of the closeness of division carried out as necessitated by the actual books in hand, and because its main classes resemble the original arrangement to a sufficient extent to show a continuity of classification during nearly the whole history of the library. The commencement of an entirely new numeration would have involved the clashing of the old and new shelf-marks. To reclassify the volumes marked under the old scheme, would have necessitated more than 300,000 alterations in the catalogue.

Whilst the Bodleian Library was progressing in the science of classification along its own lines, library science in general was certainly not standing still. It is curious to note

Developments in the Classification of the Bodleian Library from its commencement to 1880.

Fixed Location. Main classes, corresponding with the University Faculties.	MEDICINE. 151-165 Medicines 160 Surgery 165 Anatomy	223 General Hist. 226 Great and Britain Colonies
Theology Medicine [Includes botany, natural history, etc.]	ARTS & TRADES. 170-176 170 Painting, Drawing and Engraving 172 Sculpture 173 Architecture 174 Music 175 Misc. Art 176 Trades	231 Army and Navy 232 Political Econ. 233 American Hist. 237 French Hist. 240 German Hist. 243 Spanish & Portuguese Hist. 246 Misc. Foreign Hist.
Jurisprudence [Includes history and everything relating to government] Arts [Miscellaneous]	MATHEMATICS AND PHYSICS. 181-198 181 Arith. and Algebra 182 Calculus 183 Geometry 184 Astronomy 185 Optics 186 Mechanics 187 Misc. Math. 188 Geology 189 Zoology 191 Agriculture and botany 193 Chemistry 196 Electricity 198 Misc. Physics	MISCELLANEOUS LITERATURE. 250-288 260 Education 264 Logic 265 Moral philosophy & Metaphysics 268 Miscellaneous [incl. domestic economy, games, sports, jests] 270 English prose 274 Romanic prose 278 Germanic prose 280 English verse 285 Romanic verse 288 Germanic verse 258 Bibliography 259 Palaeography 249 Novels and romances. 251
Sample of notation A 4.6.Th.	LAW. ENGLISH TOPOGRAPHY. ENGLISH DRAMA. ATLASES. NUMISMATA.	CLASSICS. 290-300 290 Greek prose 291 Commentaries 292 Greek verse 293 Commentaries 294 Latin prose 296 Commentaries 297 Latin verse 298 Commentaries 299 Misc. prose (Since the Classic Age) 300 Misc. verse
"Year books." 1824-1850. The books of each year arranged in alphabetical order and numbered 1 onwards. E.g. 1824.1 or 24.1 1824.2 1824.3 etc.	HISTORY. 201-246 201 Geography 203 Voyages and travels 210 Biography, Letters, etc. 218 Genealogy and Heraldry 220 Chronology 221 Ancient History and Mythology	PHILOLOGY. 301-305 301 Comparative 302 English 303 Foreign 304 Greek 305 Latin
Relative location. About 1850. 1 Theol. 20 Med. 30 Arts and trades 35 Law 50 Math. & Physics 70 Misc. Literature 85 Poetry 90 Classics 95 Philology		
Classification scheme in use from 1860?-1880.		
THEOLOGY. 100-147 100 Sermons 101 Commentaries 110 Eccl. history 130 Controversies 133 Missions 138 Liturgies 141 Miscellaneous 147 Sacred Poetry		

Separate Collections.

that what happened at the Bodleian found a counterpart in libraries in general, though it may be from different causes. I have already indicated that fixed location seems to have been general in the early days of libraries. At the passing of the Public Libraries Act there was no scheme of arrangement to follow. The writings of Edwards were practically the only publications existing, and it seems that he had not got beyond the idea of making the shelves the standard of numbering. The libraries that adopted the fixed method of arrangement would soon be in trouble from the unequal growth of different sections. It is my belief that the want of a classification notation helped toward the universality of the adoption, in English public libraries at any rate, of the so-called classification by main classes. I do not pretend to say it was the chief cause of this system. That should be sought rather in the poor financial provision for libraries, which did not allow enough money to pay men of sufficient ability to organize and arrange the collections scientifically. In the circumstances there is no cause for surprise that the registering of books did not get much beyond a simple numbering from one onwards as they were bought, a numbering which was used in the shelf arrangement. I suppose these numbers can be called a notation, but certainly not a classification notation. Quite a startling innovation would be the classification into about eight or nine main classes already mentioned, that were referred to by letters A, B, C, etc., and that had each its numbering from one onwards as the books arrived. A 1, A 2, A 3 is certainly more of a notation, but it doesn't carry one very far, since in the section science, for instance, you can get a book on the blue bottle fly next to one on electricity, and that next to one on the daisy or the planet Mars. Mr. Brown, in his manual of classification, has poured much scorn on this labour-saving method of numbering books, still only too frequently to be found in English libraries.

Then came the real study of the subject of book arrangement, signalised in print first by the Dewey Decimal Classification, with a notation purely numerical; then by Cutter's "Expansive" scheme, with a notation consisting entirely of letters; later by Mr. Brown's "Adjustable" Classification, with its combination of letter and number, and last, but not least, bringing it right down to date, by Mr. Brown's "Subject" Classification. You are probably all familiar with the features of each, but in order further to illustrate my point I give in a second table a comparison

Comparison of the main classes of four of the principal Classification schemes to show their notations; together with one section of each in detail.

BODLEIAN.	DECIMAL.	EXPANSIVE.	SUBJECT.
96-149 Theology 150-169 Medicine 170-179 Arts and Trades 180-199 Natural Science 200-209 Travel	000 General 100 Philosophy 200 Theology 300 Sociology 400 Philology	A General B Philosophy BR Religion E Biography F History	A Generalia B-D Physical Sciences E-F Biological Sciences G-H Ethnology and Medicine I Economic Biology
210-220 Biography, Heraldry and History	500 Natural Science 600 Useful Arts 700 Fine Arts 800 Literature	G Geography and Travel H Social Science L Science and Arts M Natural Sciences	J-K Philosophy and Religion L Social Sciences M Language & Literature N Literary Forms
230-248 Sociology 250-259 Literature 301-329 Language 340-399 Miscellaneous	900 History and Description	Q Medicine R Useful Arts VV Fine Arts X Arts of Communication by Language	O-W History, Geography X Biography
384 Amusements, General history 3841 Dictionaries 3842 Greek 38423 Roman 38426 Other ancient 3843 Modern 38431 Gymnastics 38433-37 Progression unaided (Walking, dancing, etc.) 3844-38435 Progression aided by machine (slating, cycling, etc.) 38444-48 Progression aided by animal	790 Amusements 791 Public entertainments 792 Theatre 793 Indoor amusements 794 Games of Skill 794.1 Chess 794.11 Chess openings 794.15 Problems 794.3 Billiards 795 Games of chance 796 Out-door sports 797 Boating and Ball 798 Horsemanship 799 Fishing, Hunting, etc.	V Recreative Arts Va Festivals Vat Athletics Vay Acrobatics Vaz Circus Vb Fighting sports Vbf Fencing Vd Outdoor sports Vg Aquatic sports Vh Ice sports Vi Land locomotive sports Vl Ball games Vm Indoor games	H 720 Athletic sports 721 Walking 722 Running 723 Paperchasing 724 Jumping 728 Boxing 733 Mountaineering 739 Swimming H 750 Outdoor games 751 Cricket 756 Baseball 758 Golf 759 Tennis 785 Mechanical amusements H 800 Field sports H 900 Recreative arts 910 Indoor games

of four of the principal classification schemes, followed by a section from each to show the methods of division.

As already illustrated, classification notation can be, and has been, carried further than the numbering of the subjects of books so that when the numbers are carried on to the books and the latter are arranged by those numbers, they will be in a methodical order. It is not really complete until it has got as far as providing a number for each individual book, as was accomplished by the fixed classification notation. The futher signs are technically termed classification auxiliaries. In the Bodleian Library this problem was early solved by giving letters to different book sizes and adding a number for each book. This was done in the little collection in the Hope-Montague room that I have described already. 50 a 1 for example would be the first mathematical book of a size, say, from seven to nine inches in height. In the old classification scheme, adopted about 1850, letters were still used, but seemingly only for the purpose of separating the class number from the book number; because we find that when a section began to get too large, it was ended and a new letter used, to start a fresh numeration from one onwards until that in its turn became too big. In some of the sections are utilized all the letters of the alphabet in their turn, from a to z, and then the letters are doubled. 100, sermons, a very big section, begins at 100a 1, 100a 2 and so on down to five or six hundred; then begins 100b 1, b 2 etc.; which is followed by c and all the letters down to 100 z 1 onwards. After that the alphabet is doubled 100aa 1, 100 bb 1, and so on. In Mr. Nicholson's scheme now in use, letters are again used to denote the sizes shown by the table:

a	books over 20 inches in height
b	15-20
c	12-15
d	9-12
e	7- 9
f	5- 7
g	below 5 inches

Then the books are numbered from 1 onwards as they are received into each section; and since the Bodleian is one of the four libraries that receive a copy of every book published under the Copyright Act, this numbering practically ensures an arrangement in chronological order, one extremely useful for bringing into prominence the latest books on various subjects. A table of numbers has been devised by Mr. W. S. Biscoe, for securing a similar chronological arrangement in

connection with classification. He gives to each century, or, since the year 1800, to each decade, a letter, and further marks separate years with numbers. For example, H represents the years 1810-19. The year 1817 is marked H17.

Perhaps the most common form of arrangement in each class is alphabetically by authors' names. In many libraries the books are so arranged, but it is not thought necessary to give any number beyond the class number because each book as it comes into the library, is entered in an accession book having a consecutive numbering from one onwards. For charging purposes this accession number is used, sometimes in conjunction with the class number. In connection with his Expansive Classification, or rather, as an auxiliary to it, Mr. Cutter devised an alphabetizing table to provide a notation for the arrangement in each section. Its main features are the use of one, two, or three letters of the authors' names followed by numbers which are lower or higher according to whether the letters they represent are earlier or later in the alphabet. One letter is used for consonants, excepting S for which two are always used, and Sc for which three are used. For names beginning with vowels two letters are always employed. The following example will show how they are used:

C77	Cook	Ir8	Ireland	Sca7	Scarbrook
C83	Cousin	Ir84	Ironside	Sco6	Scott
C84	Crabb	Is89	Istar	Scr5	Scrofton

Without using numbers of considerable length, however, it is often difficult to specify particular books. Mr. Jast devised a scheme, which was published in "The Library World," the basis of which was the use of three letters of each authors' name followed by a number and then one or two initials of the title. By this means individual books can be marked; but even then a long number is often required. The example

822
SHA4
.H

written fractionally for convenience in entering on the tag, will give an idea of the marking. 822 is the Dewey number for English Drama; Sha4 is the author mark for Shakspere, and H for a work on Hamlet. If several works on Hamlet are in the library, additional letters or numbers are added to the last symbol for each work.

Without wishing to add to the large number of book marks already existing, I might suggest a simplified method of providing a sufficiently approximate alphabetical order together with a complete book number. The idea is simply to use the first letter of the author's name where Mr. Nicholson uses a size letter, and then to number the books as they are added. That is to say, in a section like 620 engineering, the books would be numbered 620a1, 620a2 for books by Abbot and Armstrong on this subject. If there are likely to be many books by authors whose names begin with A, it would be a simple matter to arrange for the use of the first two letters of their names. By using fairly close classification divisions for the library this would be found to provide a useful charging number. The accessions book would give place to a combined accessions books and shelf register, as at the Bodleian. From practical experience I consider such a notation would be eminently useful for public libraries even of the largest size. A method of denoting sizes in connection with most classifications, is to prefix a "lower-case" f to the class number of books of folio size (e.g. f843); a "lower-case" q for quarto books (e.g. q942) and to leave ordinary octavos without any extra mark. Further letters can be used if a larger number of size divisions is required.

I have already shown that notation can be made to mark more than the class. It can go much further than denoting particular books. The best illustration of the perfection to which it can be carried is probably to be found in the expansion of the Decimal Classification devised by the International Institute of Bibliography at Brussels. This Institute, while preserving Dewey's notation, with modifications such as the dropping of cyphers and the decimal point as used by him, has introduced an elaborate system of symbols, by which almost any conceivable subject, its special points of view, and even its relation to other subjects, can be signified by notation. In the Institute's extended scheme, form is expressed by a cypher within brackets; place by numbers within brackets; time by dates (or shortened date numbers) within inverted commas; language by the Dewey number following the = sign; relation to another topic by the Dewey number for that topic following a colon; and relation to another section of the same subject by its abbreviated number following a hyphen. It is most difficult in a few words to explain the complicated notation, but perhaps an example will be sufficient to denote its usefulness.

"A treatise in French on Asiatic labour in the Transvaal mines in 1900" would be denoted by the notation:

331		= Work and workers
.62		= Foreign labour
.625		= Asiatic labour
(682)		= Transvaal
: 622		= Mining
" 1900 "		= The year 1900
	=4	= The French language

I do not pretend that the full scheme is necessary or possible in a public or, in fact, any library. But for the arrangement of the great catalogue that is being built up by the Institute, it has been found invaluable. The example given is an extreme case to show as many of the symbols in use as possible. It may be mentioned that if a technical library were marking this subject, Mining would come first in the notation thus:

622 (682) : 331 .625 "1900"

that is, Transvaal mining as affected by Asiatic labour in the year 1900.

The Bodleian classification has also in many directions been extended to denote minute sub-divisions, as can be seen in the Bibliography section. 2590 is the number for English libraries; a particular book in a single library in a particular place is denoted by a fractional notation as in the case of

2590 e

Oxford

1.6

2590	= English libraries
e	= the size (7-9 inches in height)
Oxford	= the place
1	= the particular library (the Bodleian)
6	= the number of the book.

The survey of notation would perhaps be incomplete without some reference to its application to special library classifications. By the kindness of Mr. P. E. Lewin, I am able to give an account of a classification that he has devised for the library of the Royal Colonial Institute. In this library a geographical arrangement is all important and forms the basis of the scheme. The notation is numerical for place division, alphabetical for main classes of subjects, and the classes are further divided by means of numbers. The geographical numbering will be indicated by the following brief table:—

UNIV. OF
CALIFORNIA

15

1	General.	5	South Africa.
11	British Empire.	6	America.
12	British possessions in Europe.	62	Canada.
2	Asia.	7	West Indies.
3	Ceylon.	8	Australia.
4	Africa.	9	South Pacific.

There are about 900 geographical divisions in use, which are divided as in the example:—

2	Asia.
22	India.
292	N. W. Frontier Province.
2924	Kohat Division.

It is only possible to give one or two examples to illustrate the alphabetical division of subjects:—

A	Topography, Description.	D	Bibliography.
B	Discovery.	E	Ethnology.
C	History.	F	Manners and customs, etc.

The classes are divided by figures as shewn in:—

M	Political Questions	M9	Defence
M1	Theory of Empire	M96	Finance
M11	Imperialism	M962	Statistics
M2	Relations of G. Britain with Colonies	M963	Crime

The complete notation in use is written thus:—59M85 (a book on the trade of Cape Colony). There are 600 subdivisions at present in use, and these, as well as the geographical numbers, are capable of further division at will. Certain form divisions are shown by a letter preceding the geographical number, as in the case of L to denote official publications.

Another special classification scheme is that of the Board of Education Library, published by Mr. A. E. Twentyman in an official white paper. In this scheme letters are given to the main divisions of education:—

A	General works	F	Special method
B	Fundamental sciences	G	Hygiene and physical
C	Educational theories		education
D	Organization	K	Textbooks
E	Buildings		

The further division is illustrated in the following examples:—

C00	General	C05.3	Theory of Instruction
C01	Principles of Educ.	C05.3	Theory of Infant
			Instruction
C01.1	Systematic pedagogy	C05.31	„ „ Instruction
			of Defectives
C02	Aims	C05.321	Blind
C05	Internal economy	C09	Educational Fiction.

There are no doubt many other special classifications, such as, for example, that of the British Library of Political Science, the tables of which have been published; but it is impossible even to name them all.

I do not pretend to have presented an exhaustive treatise on notation, but rather to have suggested its usefulness and perhaps its importance. Sometimes it is necessary to travel far in search of information relating to all the phases of a subject in library economy. For instance, in studying book-charging methods one would probably have to visit many libraries in order to see the various methods in use. But in the case of classification and its notation one can go to the Bodleian and see nearly every method that has been tried at one time or another, and how each has given way to some other form more suitable or more convenient to the time. Further, at each new stage in marking the books, the various collections have been retained, often in their original positions, and always with the numbers unchanged, so that it is possible to journey from room to room and see how the library has developed with respect to book arrangement and numeration, gradually progressing to one of the most minute classifications in existence. It cannot be said that classification has yet reached finality. There is still an opening for the display of inventive genius in simplifying or extending the usefulness of existing schemes, or even for the introduction of altogether new notations. When finality has been reached, if that ever does happen, there is still room for ingenuity in applying the multitude of symbols that can be brought into use.

[In the discussion it was pointed out by Mr. C. J. Purnell, M.A., that the various shelfmarks mentioned in the paper by no means exhausted those in use in the Bodleian. Additions of books printed before 1640, other than the incunabula which form a separate collection, are classed together with the title of *Antiquiora*. Collections both of MSS. and printed books are still called after their donors' names, and, in some cases, the names are retained for press-marking the modern additions to the Library in the particular subject in which the collectors specialized; e.g. *Gough Additions for English Topography*; *Malone Additions for English drama*. The former would be written *G. Adds.*, often shortened to *G.A.*, and would be followed by the special topography class numbers. No one without actual experience in a large library could realize the difficulties in the way of a minute classification of such a tide of books as flows into the British Museum, the Bodleian, and such libraries. The continental theses alone involved an enormous amount of difficult work. In reply to Mr. J. D. Brown's remark that classification notation was being overdone, he said that at their next meeting (at the London Library) the Association would have an opportunity of seeing a Library which has no notation other than the name of the subject.]

A question was asked as to whether the fixed location method was altogether doomed; to which the reply was given that for a growing library this method was useless.]

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